

For Bread-Biscuits-Cakes



**I-H FLOUR**

For Sale by  
ELLISON'S GROCERY Alma, Mich.

**MUSCLE SHOALS**  
**NATION'S BULWARK**

Big \$60,000,000 Nitrate Plant  
a Defense for Future  
Generations.

**INSURES NATIONAL DEFENSE**

Assurance of Abundant American Explosives a Reason Why Germany Quit.

By GARRET SMITH.

One of the chief fortresses of America's new military defense system which developed out of the World War is the Ammonium Nitrate Plant at Muscle Shoals, Alabama, on the Tennessee River, over three hundred miles from the seacoast, capable of turning out 300 tons of high explosive a day. It assures to the United States for all time an abundance of ammunition without which an army is a helpless encumbrance and it has made this unlimited supply of explosives available without resort to raw material from outside of the country.

The essential ingredient of all modern military explosives is nitric acid. Before the World War, America was entirely dependent upon Chile for the supply of nitrate of soda, the only chemical from which nitric acid can be made. In case this country became involved in war with any nation that could control the sea our foe would have us at her mercy, for she could cut off our essential means of striking back.

Other nations, however, were equally dependent upon the Chilean nitrate supply. Germany was purchasing one-third of it. She had expected to hold the sea with her submarines but failed. But a process for extracting nitrogen from the air had been obtained by Germany some years before from Italian chemists. This process had been successful in producing a high grade nitrogenous fertilizer from which in turn could be extracted ammonium nitrate. Germany, therefore, fell to manufacturing ammonium nitrate from the air on a large scale.

**Americans Buy German Secret.**

In 1907 an American company, headed by Frank S. Washburn, had secured the American rights to this process from Germany and had gone into manufacturing the fertilizer on the Canadian side of the Niagara Falls. When America found herself in the World War the Ordnance Department turned to Mr. Washburn's company for help. The Air Nitrates Corporation was formed, with Mr. Washburn at its head, to build the Muscle Shoals plant. It was assisted by several other well known corporations, such as the Westinghouse Electric Company, which put up the plant buildings, the permanent city and utilities; the J. G. White Corporation, which designed and constructed the power plant; the Chemical Construction Company, which designed and built the nitric acid plant, and the M. W. Kellogg Company, which furnished the piping and built the chimneys.

Beginning work in November, 1917, the big plant and new city at Muscle Shoals was completed within one year's time. Had the expected spring drive of 1919 materialized this one plant alone would have been able to supply 13 per cent. of all the high explosives used by all the Allied armies on all fronts during that drive and the United States was secure for all time to come against an ammunition shortage.

When the arrangement was finally made for building the big air nitrate plant, work was begun on a power plant at the same point. This work is being conducted directly by the United States Engineering Corps. It will not be completed, however, for two or three more years. It was necessary, therefore, in order to insure immediate operation when the nitrate plant was completed to construct a \$10,000,000 steam power plant, one of the largest steam plants for the production of continuous electric power in the world. It is pointed out that even had the water-power plant been completed during the war it would have been necessary also to have constructed a steam plant to insure the nitrate plant working at full capacity at all times during the year.

**Plant Worth All It Cost.**

Now, this entire job cost the Government \$60,000,000. It was put through at a time when the prices of materials and labor were at their summit. It was built at record speed, and speed costs money. The question naturally arises, then, as to whether Uncle Sam got his money's worth.

Tests made after the plant was in operation showed that ammonium nitrate of standard specifications could be produced at this plant at a cost of less than one-half the standard fixed price paid by the Government for ammonium nitrate produced by the older methods. This cost is only about one-fourth to one-fifth the cost of other high explosives of equal strength. Compared with the older process for making ammonium nitrate, the savings made by this plant would have paid for the entire plant in about one and one-half years of operation.

The chief value of the Muscle Shoals plant, however, will be as a defense for coming generations.

**Iodine for Scratches.**

Scratches on dark oak furniture may be greatly improved in appearance by carefully painting the scars with iodine, using as many coats as necessary to produce the desired depth of color. When this is dry go over the whole piece of furniture with a good furniture polish.

**Aluminum From Labrador Stone.**

A factory in Norway claims to obtain aluminum from Labrador stone heretofore regarded as valueless.

# NATIONAL

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The Entire Family Can Dress Up-to-the-Minute on Our Easy Payment Plan

Wear good clothes, look right, be warm and comfortable. We clothe men, women, youths, misses and children and let them pay for the garments in small weekly payments. Come in and get acquainted with our novel "Just Say Charge It" Plan.

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The very latest of winter fashions, emphasizing by many graceful ornamentations that make these creations more than fascinating. All the new shades are shown, and all specially priced at—

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Our entire stock of jersey dresses are the newest styles and patterns; values up to \$45 Saturday only—

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OF SERGE AND SATIN COMBINATIONS

Dame Fashion's latest offerings, direct from our New York designers. Just the proper garments for the demands of the busy winter season. Many models in becoming straightline effects. Others are beaded and embroidered. The materials include serges, satins and tricotines; also combinations of serge and satin. You'll find them irresistible in color effects and stylish of appearance and worth in price fully one-third more than we ask

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These smart double-breasted and single-breasted models in wool fabrics of flannels, cassimeres, chevots and worsteds; some belted, others semidignified, and all handmade in an attractive assortment of new patterns.

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**CREDIT**

NO CHARGE FOR ALTERATIONS

# National

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